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Sharing Ideas of the Path Taken

Accomplishments of the 1990 RPA Program

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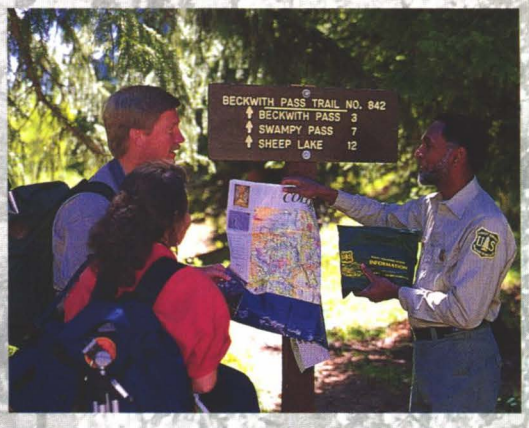


United States Department of Agriculture | Forest Service | Washington Office | 14th & Independence SW
P.O. Box 96090
Washington, DC 20090-6090

Reply to: 1910

Date: MAR 23 1994

Subject: "Sharing Ideas of the Path Taken: Accomplishments of the 1990 RPA Program"

To: Regional Foresters, Station Directors, Area Director, IITF Director, WO Staff Directors, Deputy Chiefs, and Forest Supervisors

Every RPA Program gives us an opportunity to display the Forest Service's resource management vision for how to care for our natural resources and to meet peoples' needs to use and enjoy those resources. "Sharing Ideas of the Path Taken: Accomplishments of the 1990 RPA Program" provides examples of how we have creatively worked, usually with a host of partners, to bring otherwise sterile plans to life.

This small sample of projects demonstrates the continuing evolution of resource management as we implement the current RPA Program. It also clearly highlights the creativity and dedication of our employees and partners as we meet resource management challenges.

The 1995 RPA Program is being developed now and will guide our actions in the future. The new Program will provide guidance for future program and policy choices. It will give substance to our commitment to make ecosystem management a reality in all we do.

I urge you to read and explore these pages with the public, your partners, future partners, and your employees. Additional information about a project may be obtained by contacting the individuals listed in the booklet. These individuals want to share their experiences with you.

I encourage you to fill out the detachable card in the booklet. Please use the postcard to let me know if this information is useful to you and to share examples of your accomplishments. Let's work together, learning from our experiences, as we look ahead and face new challenges.

Jack Ward Thomas

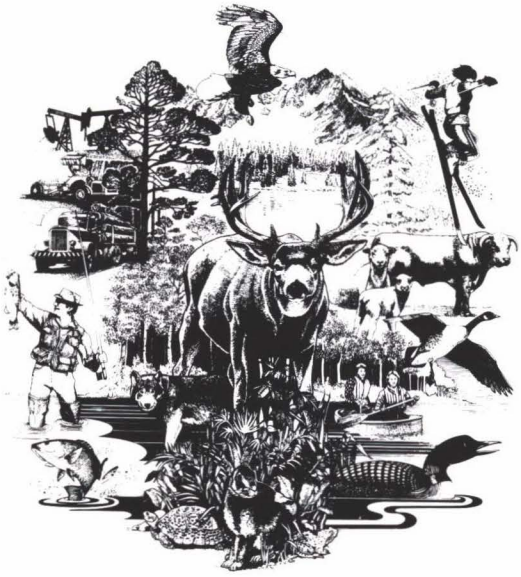
JACK WARD THOMAS
Chief

Enclosure

Creativity in Action

Message to the Reader

The USDA Forest Service, a responsive leader in resource conservation and environmental values, is dedicated to serving the needs of present and future generations of Americans and caring for their land. Managing multiple resources is complex and challenging. It requires comprehensive, dynamic planning and effective communication to meet increasing and evolving demands of national and international priorities.



The four themes of the 1990 Resource Planning Act (RPA) help us focus initiatives and programs as we continue to evolve. The foundation—the Forest Service Mission, Vision, and Guiding Principles—provides the link between the themes and the people being served. With this framework the Forest Service responds to evolving needs by shaping long-term program direction to provide the best possible blend of natural resources and resource values.

Management decisions require a creative blend of long-term vision and near-term action with a sensitivity to effects. Communicating examples of implementation of the Forest Service's long-term strategic plan through daily work activities is essential.

This document is designed to do that—to show how Forest Service people have creatively worked with a host of partners to implement actions that bring otherwise sterile plans to life. These activities demonstrate not only the continued evolution of resource management to implement the current strategic plan but also move us further in the implementation of ecosystem management.

Activities and projects represented here are only a small sample of current efforts. They clearly demonstrate the direction provided by the RPA program and the employees' innovative dedication to "caring for the land and serving people" in their daily activities.

They are grouped by the four major themes. Each project has a short description and is keyed to a technical contact in Section V, Share, to help the reader locate additional information.

Enjoy your reading and exploring. Perhaps the path you are about to take will lead to new ideas and put you in contact with people who can guide you in your endeavors and discoveries.

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CREATE ADVENTURE

The forest service will enhance production of outdoor recreation, wildlife, and fisheries resource outputs and resource values on National Forest Systems lands.

Through increased technical and financial assistance for multiple-resource management, on State and private forest lands, research will focus on enhancement of compatibility of multiple resource uses on all lands.

Creativity in Action

CREATE ADVENTURE

Barrier-Free Fishing at Henry Lake

Ottawa National Forest installed a barrier-free fishing pier at Henry Lake. The pier provides access for the physically impaired and serves as a focal point for an annual fishing derby for kids. Restroom facilities have recently been added to accommodate the physically impaired.

Donations of labor and materials came from the Michigan Department of Natural Resources, Michigan Department of Corrections, Gogebic Soil Conservation District, Steiger Lumber Company, Blackjack Ski Resort, Lions Club, and Cramblit's Welding. Contributions totaled more than $3,500. More than 60 youngsters helped dedicate the pier with a fishing contest during National Fishing Week.

Bob Nicholls, USDA Forest Service. 93-AC-2027.

See page 36, item I-c, for further information.

Beartree Challenge

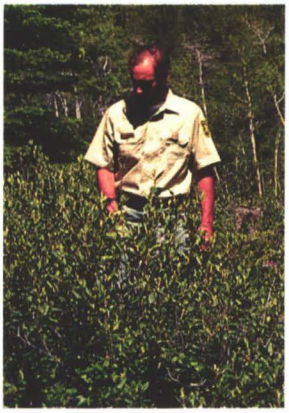
The Forest Service has formed a partnership with Montana's timber industry, called Beartree Challenge, to improve 1,000 acres of grizzly bear habitat.

Together, foresters and biologists developed harvest strategies to accomplish wildlife objectives. In turn, shrubfield creation projects provide timber volumes that meet up to 75 percent of local annual demand. The enhancement of national forest grizzly habitat should also reduce potential for grizzly-livestock conflicts on private lands, allowing ranchers greater flexibility in managing their rangelands.

To share the vision of Beartree Challenge, an education component was built into the program. This outreach effort targets all public sectors, with special emphasis on elementary and high school students. Each year the public is invited to tour and observe the implemented projects. The tours are designed to convey the ecological and technological benefits demonstrated by each project.

See page 36, item I-d, for further information.

Enhancing Habitat



Jill Bauermeister, USDA Forest Service. 90-CS-1888.

Releasing buffalo berry shrubs projects typically create fuelbreaks between National Forest System lands and adjoining lands.

CREATE ADVENTURE

Acquiring Special Areas

The Land and Water Conservation Fund and Special Receipts Acts authorize land exchanges, donations, and purchases with contributions. Consolidation of ownership improves recreation resources, ecosystem management, and wildlife/fisheries habitat. In fiscal year 1992, a total of 157,018 acres were acquired.

The Fund provides money, or contributions, to buy land for recreation and purchase inholdings in congressionally designated areas, such as wilderness, wild and scenic rivers, trails, and national recreation areas. It protects scenic wonders and archeological sites, wildlife and fish habitats, sensitive ecosystems, wetlands and watersheds, migration corridors, and plant and animal reintroduction efforts.

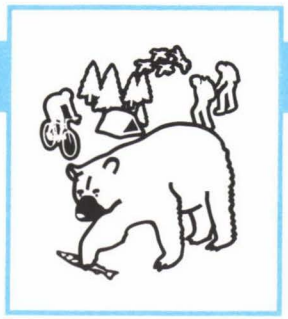
Projects are ranked by the following criteria: threat by development, number of recreation opportunities, plant and animal habitat protection, cultural resource protection, protection of wetlands and riparian areas, accessibility for the elderly and physically impaired, rapidly increasing use by the public, proximity to population centers, and improved manageability and efficiency.

See page 36, item I-b, for further information.

Acquiring Sensitive Areas

Jill Bauermeister, USDA Forest Service, 89-CS-1265

Creativity in Action



CREATE ADVENTURE

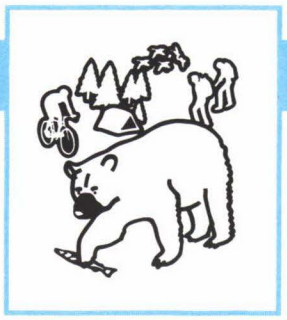
Abandoned and Inactive Mine Inventory

Western regions have begun inventories of abandoned and inactive mines, a process which will probably take 3 to 5 years. In addition to fulfilling their primary purpose of identifying hazardous material sites, the inventories will likely result in identification of cultural resources, endangered species populations, and watershed improvement needs.

Inventories and corrective actions represent an expansion of Forest Service efforts to restore productivity to impaired riparian areas, to enhance recreation and habitat values, and to increase water quality, which benefits other ecosystem components.

See page 36, item I-a, for further information.

CREATE ADVENTURE



Enhancing Recreation Through Integration

"Meaningful Measures for Quality Management" initiatives are being developed to improve the use of limited funds to enhance recreation resources and opportunities for customers. Initiatives that enhance recreation opportunities include:

Jim Hughes, USDA Forest Service, 89-CS-1585

View from Sherman Pass Scenic Byway Kettle Falls Ranger District, Colville National Forest.

formation of a Wilderness Institute to improve wilderness management, expansion of tourism efforts, creation of over 100 scenic byways, and the elimination of the backlog of facility and trail maintenance work.

Enhancing Wilderness

The partnership program and the National Recreation Strategy are expanding efforts to improve quality services.

Enhancing Recreation

See page 36, item I-e, for further information.

Jim Hughes, USDA Forest Service, 00-CS-0373

Washington Pass, View from North Cascades Scenic Highway, Okanogan National Forest.

CREATE ADVENTURE

Habitat Requirements and Distribution of the Little Colorado Spinedace

Every Species Counts

An "Every Species Counts" project on the Coconino National Forest, in partnership with Northern Arizona University and the Arizona Game and Fish Department (AGFD), is investigating the habitat requirements and factors limiting the distribution of the Little Colorado Spinedace, a fish listed as threatened under the Endangered Species Act. In 1991, field studies confirmed laboratory results showing that rainbow trout readily prey on spinedace. The Forest Service is working with the AGFD to protect the spinedace and find alternatives for sport fishing opportunities.

The Little Colorado Spinedace federally listed as threatened in 1987. Photo by John Rinne.

See page 36, item I-f, for further information.

Winter sampling for Little Colorado Spinedace. Photo by Tom Cain.

CREATE ADVENTURE

Management of Access Strategies to Enhance Riparian and Upland Conditions

The Rocky Mountain Elk Foundation (RMEF) and Mountain City Ranger District initiated a 2-year "Elk Country" project to inventory and classify riparian and upland habitats adjacent to, and within, the Bruneau River watershed.

The resulting data will be used to evaluate the effectiveness of current management and access management strategies needed to enhance riparian and upland conditions. The data also will be integrated into the forest's geographical information system and used to determine suitable areas for elk reintroduction, to improve fisheries habitat, and to reallocate livestock on four grazing allotments to balance wildlife habitat needs with grazing needs. RMEF contributed $60,000 and the Forest Service $120,000.

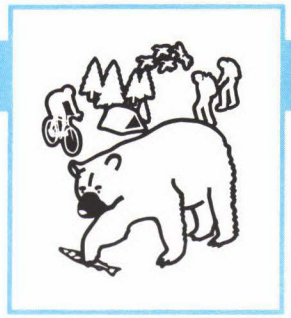
See page 36, item I-g, for further information.

Improve Management

Tom Iraci, USDA Forest Service, 00-CS-2194

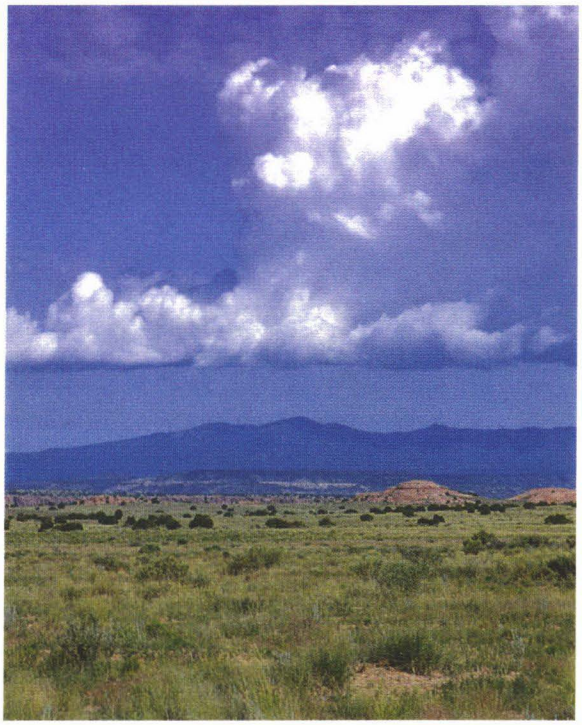
Enhance Riparian Conditions

Creativity in Action



CREATE ADVENTURE

Meadow Restoration



R. Wilkerson, USDA Forest Service, 90-SN-1570

Reconstruction of Zuni Mountains Road

Most Zuni Mountains land was privately owned prior to 1940. From 1880 to 1940 extensive livestock grazing and logging allowed water runoff to increase. Extensive erosion cut channels through meadows, lowered the water table and dried up the meadows.

One goal of this Cibola National Forest reconstruction project is to restore 1,000 acres of damaged or destroyed meadows. A team of engineers, hydrologists, soil scientists, and biologists, with assistance from scientists at the Rocky Mountain Forest and Range Experiment Station, is designing meadow restoration work.

Restoration ideas for road drainage were originally developed by employees who wanted to improve the practices of road maintenance and reconstruction. With these improvements, soil moisture increased where meadows had existed prior to erosion, allowing meadows to return. Simple-to-use and inexpensive techniques restored the meadows, also increasing biodiversity and improving water quality. This technology is shared with county and tribal road managers throughout New Mexico.

See page 36, item I-h, for further information.

CREATE ADVENTURE

Tenmile Creek Watershed Fish Habitat Improvement

More than 100 people helped to improve 1.5 miles of fish habitat and stream quality in the Tenmile Creek watershed on Hume Lake Ranger District. The following groups were represented: Kawaah Flyfishers, Kern River Flyfishers, Fresno Flyfishers for Conservation, Trout Unlimited, Cal Trout, California Department of Fish and Game, Proteus, Tulare County Conservation Corps, Community Services Employment Training, California Department of Forestry and the Forest Service. Under this "Rise to the Future" project, 32 structures were completed; 20 structures were placed in the creek, and 12 were placed to prevent further erosion of headcuts. Total contribution from outside the Forest Service was $47,000, while Sequoia National Forest contributed $14,000.

Rise to the Future

See page 37, item I-i, for further information.

Totem Pole Replacement

Using rural development funds available in FY 1990, the Alaska Region supported a project in the village of Klawock to replace an aging totem pole and demonstrate totem carving to students. This effort gained public support and was seen as a way of maintaining the culture and history of this Native Alaskan clan. The totem pole served as the basis for renewed efforts by the community to develop a local totem park and museum complex as an attraction for tourism. A celebration and blessing of the totem pole marked the completion in June 1991 with over 1,000 people in attendance.

Expanding Partnerships

This project expands partnerships with Native Alaskans by providing direct technical and financial assistance in preserving their cultural and historical resources. Moreover, the project also contributes to community economic development through tourism.

See page 37, item I-j, for further information.

Creativity in Action

CREATE ADVENTURE

Upper Coeur D'Alene River Basin Improvement

Fisheries are of paramount importance to land management professionals in the Pacific Northwest. Studies indicate that the critical link to sound management is habitat improvement and maintenance and is achieved through proper stewardship of soil and watershed resources.

Spyder hoe placing woody debris in headwaters and in streams.

Wallace Ranger District has stewardship responsibilities over Coeur D'Alene River headwaters and its tributary network, a complex of over 350,000 acres of sustained production timber lands, critical fish habitat for sensitive game fish (cutthroat trout and bull trout), and a major recreational complex for the rapidly growing communities of Coeur D'Alene, Idaho, and Spokane, Washington. The river and Lake Coeur D'Alene serve as a recharge source to the Rathrum Prairie Aquifer, a primary water source.

Economic Diversity

A significant degradation of water quality and natural channel morphology has occurred in recent years. Chronic erosion delivers otherwise highly productive soils to its tributaries. This erosion includes channel destruction, reduced water quality, increased flood frequency, elevated heavy metal sediments downstream, and a decline in sensitive fish habitat.

Innovative watershed rehabilitation techniques have yielded significant benefits for soil and water resources in the river. These benefits will continue to increase throughout the next decade.

See page 37, item I-k, for further information.

BE SENSITIVE

Forest Service will increase environmental sensitivity and emphasize this sensitivity to environmental objectives in technical assistance provided to State and private landowners.

Develop a better understanding of basic ecology and methods of management that reduce environmental impacts, a major objective of the research program.

Creativity in Action

BE SENSITIVE

Keeping Forests Healthy

Black Bark Beetle Thinning

> *...The forest has anticipated and avoided a potentially devasting epidemic ...*

In the early 1980's, a major epidemic of mountain pine bark beetle devastated expanses of lodgepole pine in central Oregon. In the mid-1980's, bark beetles began moving into second-growth stands of ponderosa pine forests.

New approaches were needed to prevent an outbreak of beetles in these second-growth stands. The beetle had begun to appear in stands of trees larger than precommercial size but smaller than traditional market size. Traditionally, treatments are not used as prevention.

Thinning is being carried out on a landscape scale with sensitivities designed to meet short-term wildlife and visual concerns. It also increases long-term tree resistance to beetle attack. Future management opportunities and values have been retained with maintenance of a healthy pine ecosystem.

"We have anticipated and avoided a potentially devastating beetle epidemic before it has occurred," says Helen Maffei, area pathologist. New technology has been used and markets found to utilize woody material previously wasted. The publicly accepted thinning project has gone from costing the Government money under service contracts to becoming an operation which returns dollars to the Federal treasury.

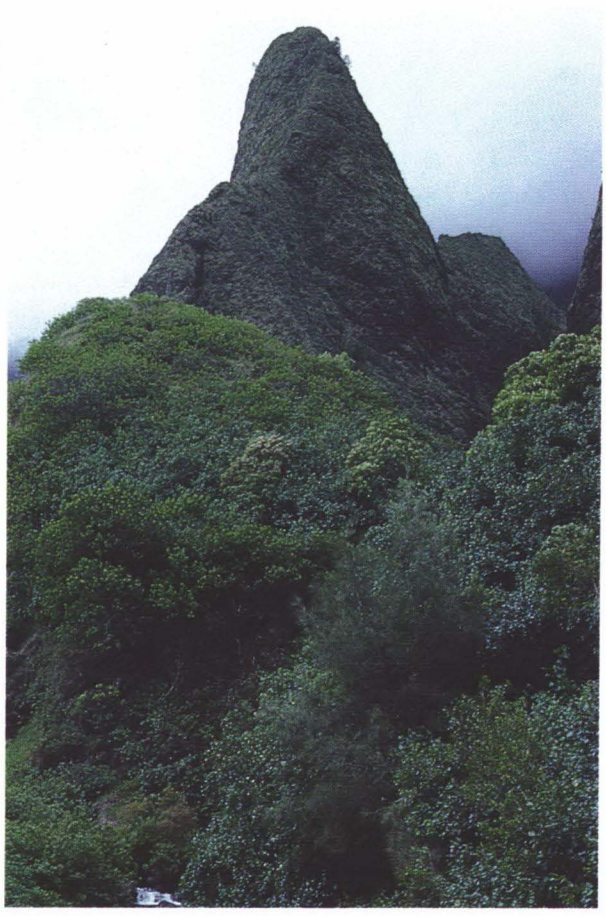
This project illustrates the benefits of developing and implementing more environmentally sensitive pest management strategies. Scientific information will enhance compatibility of resource uses. Increased research program efforts have developed techniques which will enhance compatible production of multiple resources. Increased investments have also enhanced biological diversity opportunities.

See page 37, item II-a, for further information.

BE SENSITIVE

Biological Controls for Introduced Weeds in Hawaiian Forest Ecosystems

Introduced weeds are destroying fragile unique forest ecosystems on the Island of Hawaii. Environmental sensitivity dictates use of biocontrols as the primary control methods.



Nancy Curnidan, USDA Forest Service

A cooperative project, involving Forest Service Research, National Park Service, Hawaiian Department of Forestry and Wildlife, and the Hawaiian Department of Agriculture, is developing biological controls for use against the most important exotic weeds, such as banana poka, gorse, and strawberry guava. This is accomplished by collecting natural enemies of these exotic weeds (damaging insects and diseases) in the weeds' native habitat of Central and South America. Selected insects and diseases are tested for their effects on crops, native plants, and exotic weeds.

Methods are being developed for propagating these insects and diseases in large quantities. After extensive testing, safe and effective insects and diseases are being released into Hawaiian forests and carefully monitored. Five new insects that act as biological control agents have been discovered and successfully released. Based on this success, a demonstration project in hurricane-impacted areas of Guam is planned to start this year.

See page 37, item II-b, for further information.

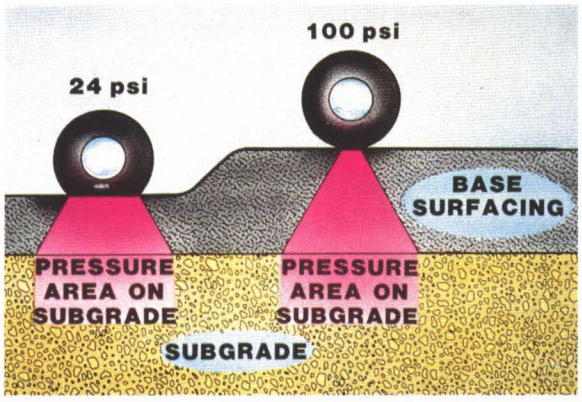
Biological Weed Control

BE SENSITIVE

Central Tire Inflation Technology Implementation Project

"Operation Bigfoot" was authorized to implement a new technology, central tire inflation (CTI). This technology matches truck tire pressures to road type and condition, resulting in significant benefits to forest environment and equipment.

Better Roads



Paul Greenfield, USDA Forest Service

Without CTI (above). As commodity production is adjusted to match ecosystem capabilities, road activities must be adjusted to reduce negative impacts (left).

Paul Greenfield, USDA Forest Service

With CTI, 50-90 percent reduction in road maintenance. Reduced road maintenance reduces both the impact of maintenance activities on the ecosystem and costs of commodity production.

A better understanding of both technology and road use impacts are yielding benefits:

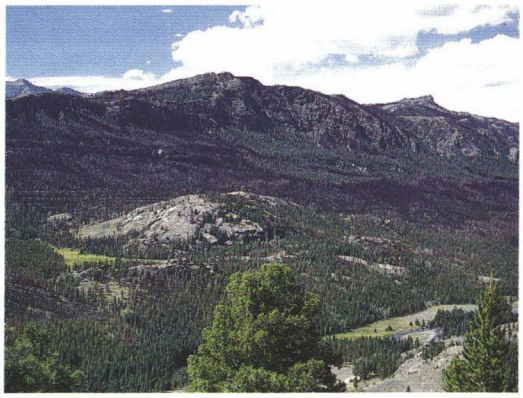
- Required road aggregate thickness is reduced by 20 to 30 percent. A reduction in the use of road aggregate prevents more land from being used for aggregate production.
- Road aggregate is used for a greater period of time.
- Road related sediment is reduced 10 to 50 percent. Reduced sediment production from roads directly enhances recreation, wildlife, and fisheries outputs.
- Driver injury and fatigue cost reductions result in lower health costs and lower commodity production costs.
- Lower vehicle operation and maintenance costs decrease costs of road operation and maintenance and commodity hauls.

See page 37, item II-c, for further information.

BE SENSITIVE

Clover Mist Fire Recovery Project

The challenge: to enhance natural fire recovery and simultaneously provide creative timber salvage methods to ensure sensitivity to the land. Resources in the Greater Yellowstone Ecosystem felt the impact of the 320,000-acre Clover Mist fire in 1988. Critical fish and wildlife habitat, soil, range, timberlands, and tourism were impaired.



USDA Forest Service

View of a rehabilitation area from Chief Joseph Wyoming State Scenic Highway. Uncut areas were designed to reduce sedimentation along streams to create wildlife security.

"We operate under a looking glass situation here," assures Randy Herzberg, Clarks Fork District Ranger. "There was a real sense of urgency to get things moving to provide soil and watershed protection from spring runoff and thunderstorms. We also needed to salvage timber sawlogs quickly, especially in lodgepole pine areas."

"From the outset," Herzberg underscores, "we realized our efforts should be used to open windows of opportunity for cooperative relationships and better understanding, communication, and education with a diversity of publics." Forest Supervisor Barry Davis requested that a fire recovery interdisciplinary team be formed with nontraditional partners, including member representatives from the timber industry, Wyoming Game and Fish Department, and Forest Service critics.

Fire salvage areas were designed for wildlife and visual diversity, bark beetle suppression, low-impact roads, and watershed protection. Reforestation efforts prescribed various rotation lengths and species components.

Wyoming Business and Professional Women, Telecommunications Inc. of Wyoming, and Jackson and Perkins Garden Catalog Company raised more than $42,000 to help. Creative agreements were also negotiated with a diversity of groups, including two major ranches and range permittees. To date, enthusiastic volunteers have planted more than 50,000 trees.

See page 37, item II-d, for further information.

Jill Bauermeister, USDA Forest Service, 90-CS-2429

Soil trapped behind this log will not end up in streams and will help reforestation and new growth.

USDA Forest Service

Green trees were left to provide seed for natural reforestation, and woody debris was left in streams and rivers to reduce sedimentation.

Creativity in Action

BE SENSITIVE

Biological Insect Controls

Environmentally Sensitive Pest Management Activities

High emphasis continues to be placed on development and use of biological controls of a variety of major insect pests that are threatening millions of acres of forest lands in the United States. The three major pests involved are: North American gypsy moth, southern pine beetle, and mountain pine beetle. In fiscal year 1992, work continued toward development of the species-specific insect virus product Gypchek to control gypsy moth outbreaks. Routine operational use of this product came closer to reality when an improved and more efficient formulation of Gypchek produced good results. Gypchek is now registered with the Environmental Protection Agency. It is being produced by the Forest Service until commercial production is feasible.

Releases of the parasitic fungus *Entomophaga maimaiga*, to help control gypsy moths in Virginia and West Virginia, were largely successful. Surveys have shown that this fungus is now widely distributed and no new releases are planned. This fungus was responsible for widespread gypsy moth population collapses in the Eastern United States this year.

The biological insecticide *Bacillus thuringiensis* was used in programs to eradicate gypsy moth and Asian gypsy moth infestations in Oregon, Washington, Utah, and Wisconsin.

Tests of special formulations of gypsy moth pheromone to disrupt mating of low-level gypsy moth populations have produced good results. It is expected this technique will be operational within the next several years.

Work on pheromones of bark beetles, such as mountain pine beetle, southern pine beetle, and spruce beetle, continues to show great promise. Tests of repellant pheromones to help manage southern pine beetles were very promising in 1992. This technique is almost ready for operational use. Protection of trees on which the endangered red-cockaded woodpecker depends is one application of pheromones.

This effort demonstrates the use of techniques that provide for insect population control and, at the same time, assures adverse impacts on wildlife populations and water quality are avoided.

See page 38, item II-e, for more information.

BE SENSITIVE

Establishing Value-Added Manufacturing for Wood Products

Kremmling, Colorado, was recently awarded a rural development grant. The purpose of the grant was to determine the feasibility of diversifying the town's economy from a primary processor to a secondary processor of wood products. The town currently produces raw wood products which are exported to adjoining States and Canada. Through creation of secondary, or value-added, manufacturing facilities, the town would be able to create additional jobs and income for the local area. The ultimate goal for this project is to develop a business incubator to assist in the creation of small businesses in the area.

This project helps to fulfill the Forest Service role of giving special attention to resource programs that diversify rural economies, thereby contributing to the well-being of local communities.

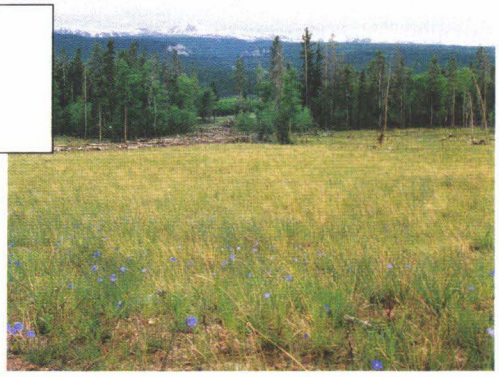
See page 38, item II-f, for further information.

Value Added

Creativity in Action

BE SENSITIVE

...what you don't see, really counts...



Oil and gas developments are screened from view by natural cover and terrain.

Environmentally Sensitive Oil and Gas Production

Wasatch-Cache Petroleum Showcase

A cooperative venture between the Forest Service, Anadarko Petroleum, Texaco USA, Phillips Petroleum and Oryx Energy will develop the Nation's energy while maintaining its environmental integrity.

This cooperation is best observed in the southwestern corner of Wyoming on the northern slope of the Uinta Mountains which straddles the State boundaries of Wyoming and Utah. At this site in late 1990, operators in the area were invited to enter into a partnership to showcase their operations. They are breaking new ground with the first oil and gas field showcase in the Nation.

The Loop Road wraps around oil fields developed by showcase partners under the multiple-use concept.

To demonstrate "What you don't see really counts" (environmentally acceptable commodity production), oil and gas developments are screened from view by natural cover and terrain. Every effort is made to preserve and enhance environmental values for wildlife, their habitats, and watershed protection.

The "Loop Road" wraps around oil and gas fields. Cooperation serves all users and provides multiple benefits: a safer road in all seasons with good sight distances, passing lanes, and realignment of sharp curves; visual enhancement; soil stability, as a result of proper backsloping and reseeding; dust-free roads that improve driving visibility and prevent dust from settling on plants beneficial to wildlife and livestock; reduced road and vehicle maintenance costs; and efficient water drainage, resulting in less erosion and increased retention of clay and gravel on the road to avoid damage to the road system from heavy truck traffic.

See page 38, item II-i, for further information.

Sharing Ideas of the Path Taken

Evaluation Card for Reader Response

Did this document help you better understand the RPA program and its objectives?

Did you discover new ideas to try?

What areas of interest to you were not covered?

Do you have accomplishment examples you would like to offer? If so, briefly state.

Would you like additional information about RPA? If so, please provide the following information:

Name: _____

Address: _____

City, State and ZIP code _____

DG address (if applicable): _____

Phone number (with area code): _____

Sharing Ideas of the Path Taken

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Phone number (with area code): _____

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Name: _____

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City, State and ZIP code _____

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Sharing Ideas of the Path Taken

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What areas of interest to you were not covered?

Do you have accomplishment examples you would like to offer? If so, briefly state.

Would you like additional information about RPA? If so, please provide the following information:

Name: _____

Address: _____

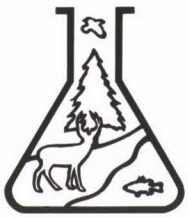
City, State and ZIP code _____

DG address (if applicable): _____

Phone number (with area code): _____

UNDERSTAND NATURE

Research will increase the study of forest and rangeland ecosystems to expand the array of resource production opportunities and protect environmental integrity of the base.



UNDERSTAND NATURE

Aldo Leopold Wilderness Research Institute

The Aldo Leopold Wilderness Research Institute was created in 1993 to obtain and provide information necessary to sustain wilderness resources in an ecologically and socially sound manner for present and future generations.

Ecology Research

The institute is a multi-agency effort led by the Forest Service. It positions the Forest Service as a leader in research, technology transfer, and education for the stewardship of the entire National Wilderness Preservation System. The process of developing the charter involved extensive intra-agency and inter-agency coordination. Participants include the Forest Service, the National Park Service, Bureau of Land Management, and Fish and Wildlife Service. Non-Federal agency participants included representatives from several universities and conservation organizations.

The model provided by the institute, both in its development and mission, illustrates how integration and collaboration between several organizations can be used to develop research programs. This will become increasingly important as the agency's ecosystem management strategy is implemented.

See page 38, item III-a, for further information.

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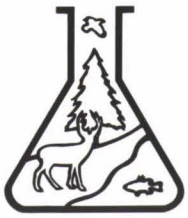
UNDERSTAND NATURE



Urban Area Research

Chicago Urban Forest Climate Project

The Chicago Urban Forest Climate Project, led by Dr. Greg McPherson, is a cooperative project with the city of Chicago. The project has six areas of research: ecology of Chicago's urban forest, urban heat islands, energy conservation, carbon storage, air quality, and comparison of benefits and costs of urban forests.

Using results from these six areas, recommendations to the city of Chicago will describe the potential of different urban forest management strategies to maximize immediate and long-term environmental benefits.

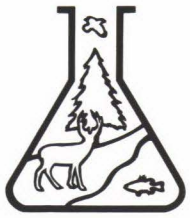
Models and other information derived from this project can be used to manage urban forest resources and enhance environmental quality in cities across the United States.

This is an excellent example of research contributing to the basic knowledge in its field, while also having direct application to management situations. It is also a good example of Forest Service Research reaching out to new partners.

Dr. McPherson was awarded the Urban Forestry Research Medal, presented by American Forests and the Natural Urban Forestry Council, for his leadership in urban forestry.

See page 39, item III-b, for further information.

Creativity in Action



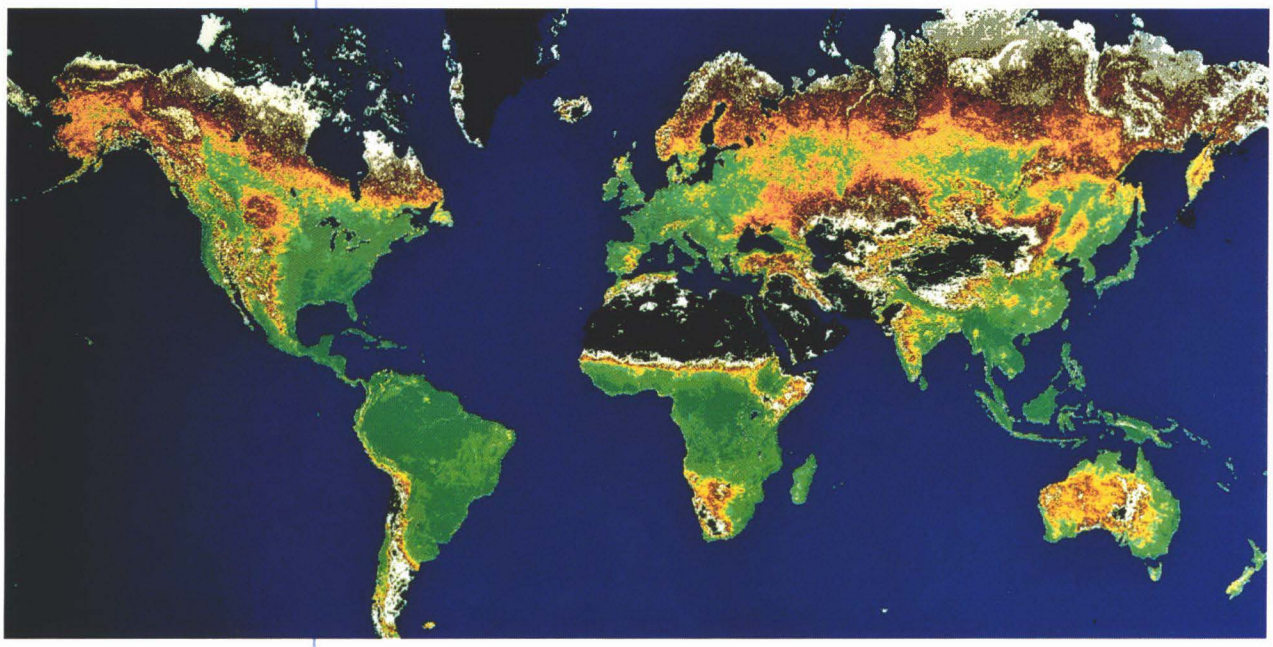
UNDERSTAND NATURE

Global Resource Monitoring

The Forest Service is currently cooperating with the United Nations Food and Agricultural Organization (FAO) in support of a global forest resource inventory. The FAO project will be the first systematic inventory of the entire planet and will be an invaluable aid in addressing global resource issues. The Forest Service has also helped Mexico map its forest resources and is looking forward to working with Canada and Russia. A large satellite image of the earth's vegetation zones, a product of the U.S. Geological Survey EROS Data Center, will provide a wonderful image.

Global Resources

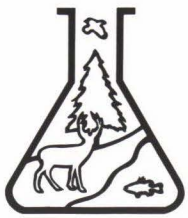
This program demonstrates how initial strategic thinking, through the RPA process, increased Forest Service leadership in addressing global resource issues. The 1990 RPA program identified increased technical assistance to



the international forestry community as a proper role for the Forest Service. Assistance with global resource assessments is a logical extension of the expertise the Forest Service has developed in managing the National Forest System and its extensive research efforts. It is also an example of how Forest Service insights of sustainable forest management can be used to encourage leadership efforts by international agencies such as the United Nations.

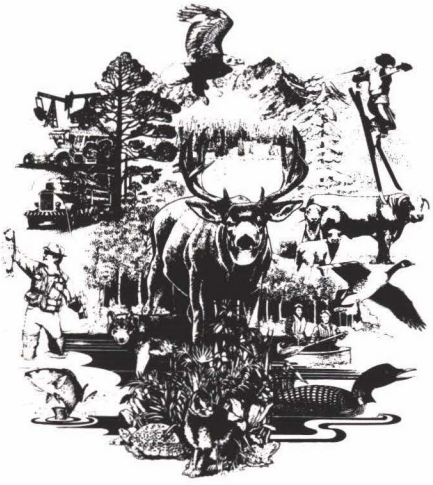
See page 39, item III-c, for further information.

UNDERSTAND NATURE



International Workshop on the Uses of the Erythrina Tree

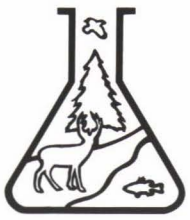
In 1992, the Forest Service and U.S. Agency for International Development hosted a workshop on uses of Erythrina, an important agroforestry tree species in many developing countries. The workshop was held at the Center for Agricultural and Forestry Research and Training in Costa Rica. It is one of many workshops the Forest Service has supported to encourage the use of agroforestry techniques in the developing world. Participants from all over the world were in attendance. Erythrina, aside from its environmental values, provides an important source of carving wood for local products, shade for crops such as coffee, and fodder for domestic animals.



Agroforestry

Agroforestry, a superb example of the integration of multiple-resource considerations in land management, is an ancient practice. It represents the integration of forestry and farming practices into an economic and biologically sustainable system. Common examples of agroforestry applications in the United States are shelter belts, farming, and small woodlots. Modern resource managers have adopted agroforestry as a means to reduce the pressure of growing rural populations on natural forests or to reduce negative trends in the condition of natural resources. Desertification and soil loss, which in turn result in the loss of natural forests, are resource condition trends of great concern around the world. The challenge now is to take proven techniques in agroforestry, adapt them to new situations, and introduce them to areas that would benefit from their implementation.

See page 39, item III-d, for further information.



UNDERSTAND NATURE

Special Long-term Sites

Long-Term Ecological Research

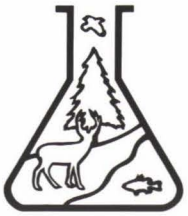
Detection of environmental change can only occur if long-term environmental observations are available. Five Forest Service Experimental Forests have been active participants in the National Science Foundation's nationwide system of Long-Term Ecological Research (LTER) Sites. Intensive monitoring of a wide array of environmental factors is conducted at these forests for integration into models of ecosystem structure and function. An outstanding feature of the Forest Service experimental forests is the long record of high-quality observation at these sites.

Altogether, the Forest Service operates over 30 sites nationwide where long-term data are collected, with the most extensive observations at the LTER sites. Fourteen sites have primary emphasis on hydrologic processes and associated climate and management considerations. Many of these long-term sites are primary global change research sites.

For example, Hubbard Brook Experimental Forest in New Hampshire has documented the chemistry of precipitation and stream water for over 25 years. This data is one of the longest records available of changes in air pollution deposition and its effects on streams. It reflects changes in regional and national trends of air emissions. Continuous environmental observations are a vital resource attracting researchers from around the world to study a wide variety of subjects related to global change.

See page 39, item III-e, for further information.

UNDERSTAND NATURE



Stream Systems Technology Center

Stream Systems Technology, established at Ft. Collins, Colorado, is a cooperative venture between the Rocky Mountain Research Station and the Rocky Mountain Region of the Forest Service. This effort has been undertaken due to the concern that excessive water withdrawal from streams in national forests will harm health and viability of stream environments.

Methods of determining maintenance flows are newly developed and specific to the central Rocky Mountains. The center is fostering development and extension of the methods to assure their appropriate and valid use. It supports cooperation between researchers and managers to apply the methods to streams in national forests.

The objective of this project is to develop and apply techniques designed to define characteristics required for healthy stream channel ecosystems. Results are being used by the Forest Service to support water rights litigation being undertaken to secure instream flow water rights in national forests in several Western States.

See page 39, item III-f, for further information.

E. Grossman, USDA Forest Service, 91-CS-0671

A *typical healthy stream.*

Stream Team

THINK GLOBALLY

Increase scientific exchange and technology transfer to other countries so all more effectively gain benefits of forest resources and reduce adverse impacts on global ecosystems.

Research efforts will be expanded to better understand global ecological interactions and tree planting in the United States will be increased.

THINK GLOBALLY

Cooperation with Brazil

Agreements between the Forest Service and the Instituo Brasileria do Meio Ambiente facilitate cooperation on an international scale. A memorandum of understanding was signed between them in 1991, and two implementing arrangements were also signed: Fire Science and Management (World Forestry Congress, Paris, 1991) and Forest-Related Science and Management (United Nations Conference on Environment and Development, Rio de Janeiro, 1992).

Cooperation includes fire assessment, scientific exchange, technical support and fire management demonstration. Initial focus has been on the Cerrado, with later extension of activities to other ecosystems, including:

Scientific Exchange

- Cooperative fire assessment: remote sensing and aircraft sampling to conduct a broad census of fire seasonal distribution, frequency, extent, physical properties, and emissions to the atmosphere.
- Reciprocal scientific exchanges: cooperative analyses of assessment data, comparative fire effects research in Brazil and the United States, and joint development of ecological simulation models.
- Technical support of fire management: exchanges of natural resource specialists, fire managers, and information.
- Fire management demonstrations in Brazil will be instituted as a means of coordinating fire assessment, ecosystem research, and the development and application of fire management systems.

Worldwide Cooperation

- Resource assessment and planning: the Brazilian Natural Resource Agency (IBAMA) will coordinate a national effort of assessment of the natural resources in Brazil, in association with the appropriate national governmental and nongovernmental groups, with input from the international community.
- Cooperative research: IBAMA and USDA Forest Service will establish cooperative studies, including: vegetation, wildlife populations, and domestic animals; nutrient and hydrological cycles; restoration of degraded or abandoned lands; management of complex ecosystems; erosion; geomorphology; ecological role of termites; economics; seeds; natural resource and socioeconomic inventories; and soils.

THINK GLOBALLY

Reciprocal exchanges may provide for cooperative analyses of data, joint publication, comparative forest management research in Brazil and the United States, and joint development of ecological models and other exchanges viewed as mutually beneficial.

Technical support may include exchanges of natural resource specialists, scientists, managers, equipment, and information.

Forest-related science and management demonstrations will be instituted as a means of coordinating forest management, ecosystem research and development and application of forest-related science and management systems.

See page 39, Item IV-a, for further information.

Cooperation with Venezuela

Interest in international cooperation in natural resource management, particularly in tropical areas, is rapidly expanding. U.S. national policy emphasizes the protection of sustainable use of natural resources and reduction of the rate of deforestation in the tropics, with an interest in global warming and other issues.

Thousands of acres of tropical forest land are heavily impacted or destroyed in Venezuela each year by mining activities. Removal of forest cover, degradation of soil, water erosion, loss of habitat for threatened and endangered species, and the discharge and lack of control of mercury and other heavy metals used in connection with mining contribute to the problem. The problem is further compounded when these activities create new open areas, providing opportunities for independent miners and small farms to become established. This hinders reclamation efforts.

Corporucion Venesolana de Guayana (CVG) personnel made significant progress in the design and application of procedures for environmentally sound mineral development and reclamation of disturbed areas. In some areas with concentrations of independent miners, sites were established to implement these methods and procedures. During the follow up visit, a longer-term relationship among the participants was proposed. After negotiations, CVG, acting through the Venezuelan Government, and the Forest Service have agreed to establish a 2-year program involving long and short-term assignment of Forest Service personnel.

See page 40, Item IV-b, for further information.

Tropical Resource Management

THINK GLOBALLY

Global Eco-Regions Mapping

With encouragement from several international organizations and agencies, a new map was developed to aid the design of monitoring networks to detect global change. *Eco-Regions of the Continents* shows Earth's land areas subdivided into regions based on large patterns of ecosystems. These regions define large areas within which local ecosystems recur throughout the region in a predictable fashion. By observing behavior of different systems within a region, it is possible to predict behavior of an unvisited one. Hence, the map can be used to spatially extend data obtained from limited sample sites. Results of observations at representative sample sites from each region would be potentially useful in detecting and monitoring global change effects. The map appears with a brief explanatory supplement in the Winter 1989 issue of the journal *Environmental Conservation*.

Global Detection

A more detailed U.S. version of this map has been adopted by the Forest Service to define coarse levels of emerging national ecological unit hierarchy for ecosystem management. This map has also been adopted by many Federal agencies and States for the purpose of resource analysis and data management, including the National Wetlands Inventory, Acid Precipitation Trends Network, Water Resources Evaluation of Non-point Silvicultural Sources, and Habitat Suitability Index Models. The Forest Service used the map in the 1980 RPA assessment and RARE II. Robert Bailey, the author, recently traveled to Russia at the invitation of the Vernadsky International Centre for Biosphere Studies to discuss a possible partnership for transferring and expanding the technology.

See page 40, Item IV-c, for further information.

THINK GLOBALLY

Greenhouse Gases, Biomass Burning, and Forest Fire Management in Brazil

Biomass burning in the tropics, resulting in the emission of greenhouse gases (GHG) to the atmosphere, is an area of major concern and uncertainty in global change considerations. The 1990 Farm Bill directed the Forest Service to become involved in measuring the emissions. Simultaneously, natural resource managers in Brazil faced serious problems with uncontrolled burning of Brazilian forests and savannahs. The Forest Service and Brazilian Natural Resource Agency (IBAMA) established a program of research and technology cooperation to gain basic data on GHG emissions from forest and savannah burning, while developing a better approach for Brazilian management of its natural resources. This program is conducted in cooperation with NASA, EPA, various Brazilian government agencies, and university cooperators from both countries.

The Brazil fire project illustrates how integrated research and management program components develop the information needed to solve global environmental problems. The project also addresses a specific, on-the-ground management problem. Information gained in the Brazil experiments helps us to better understand, and respond to, resource issues involving fire and air pollution here in the United States.

See page 40, Item VI-d, for further information.

Fire in Brazil

THINK GLOBALLY

Re-green LA

Four weeks after the Los Angeles racial unrest following the verdict in the Rodney King case, a special partnership was formed between the California Department of Forestry, TreePeople, Los Angeles Conservation Corp, U.S. Department of Agriculture's Extension Service, and the Forest Service. It launched a commercial-matching funds and grant program to encourage urban forestry, tree planting, and gardening projects among nonprofit and non-Federal government agencies within Los Angeles County's traditionally neglected areas.

The program objectives were to trigger immediate and long-term employment, facilitate the healing process, and develop community leadership skills to ensure long-term commitment and involvement among members.

The Forest Service was asked to support these objectives by taking specific actions to promote long-term urban tree planting, agroforestry, and community horticulture for young people and adults. It was also asked to support immediate and potential long-term employment opportunities that would promote economically productive and stable communities.

Agroforestry has reaped successful results, proving itself to be a positive application of Forest Service programs exemplifying the potential of urban forestry: jobs and business development opportunities in urban forest management.

See page 40, Item IV-e, for further information.

Section V

SHARE

SHARE

I
CREATE
ADVENTURE

I. CREATE ADVENTURE
Recreation, Wildlife, and Fisheries Resource Enhancement

I-*a*. *Abandoned and Inactive Mine Inventory*
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Washington, DC 20090-6090

I-*b*. *Acquiring Special Areas*
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Lands Staff, NFS
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Vickie Boesch (W01A)
Realty Management, Programming and Budgeting
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Washington, DC 20090-6090

I-*c*. *Barrier-Free Fishing at Henry Lake*
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Ottawa National Forest
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Milwaukee, WI 53203

I-*d*. *Beartree Challenge*
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Seth Diamond (R01F15D01A)
District Wildlife Biologist
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Rocky Mountain Ranger District
Lewis and Clark National Forest
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I-*e*. *Enhancing Recreation Through Integration*
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Steve Morton (R01A)
Wilderness Management
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I-*f*. *Habitat Requirements and Distribution of the Little Colorado Spinedace*
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Federal Building
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Albuquerque, NM 87102

I-*g*. *Management of Access Strategies to Enhance Riparian and Upland Conditions*
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I-*h*. *Reconstruction of Zuni Mountains Road*
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John D. Fehr (R03F03A)
Forest Engineer
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SHARE

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I-j. Totem Pole Replacement

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I-k. Upper Coeur D'Alene River Basin Improvement

Steve Williams (R01F04D01A)
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Wallace Ranger District
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II. BE SENSITIVE Environmentally Acceptable Commodity Production

II-a. Black Bark Beetle Thinning

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Don Pederson (R06F01A)
Timber Staff Officer
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II-b. Biological Controls for Introduced Weeds in Hawaiian Forest Ecosystems

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II-c. Central Tire Inflation Technology Implementation Project

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John Steward (W01A)
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II-d. Clover Mist Fire Recovery Project

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I
CREATE ADVENTURE
(continued)

and

II
BE SENSITIVE

SHARE

II
BE SENSITIVE
(continued)

and

III
UNDERSTAND NATURE

II-*e.* *Environmentally Sensitive Pest Management Activities*

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II-*f.* *Establishing Value-Added Manufacturing for Wood Products*

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II-*g.* *Paper and Wood Recycling Research*

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II-*h.* *Trinity Project*

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II-*i.* *Wasatch-Cache Petroleum Showcase*

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III. UNDERSTAND NATURE *Improved Scientific Knowledge About Natural Resources*

III-*a.* *Aldo Leopold Wilderness Research Institute*

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SHARE

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III-*b*. *Chicago Urban Forest Climate Project*

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III-*c*. *Global Resource Monitoring*

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III-*d*. *International Workshop on the Uses of the Erythrina Tree*

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III-*e*. *Long-Term Ecological Research*

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III-*f*. *Stream Systems Technology Center*

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IV. THINK GLOBALLY *Responding to Global Resource Issues*

IV-*a*. *Cooperation with Brazil*

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III
UNDERSTAND NATURE
(*continued*)

and

IV
THINK GLOBALLY

SHARE

IV
THINK
GLOBALLY

IV-*b.* *Cooperation with Venezuela*

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IV-*c.* *Global Eco-Regions Mapping*

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Communicating and Futuring

A *Foreword to the* Future:

The purpose of this publication is two-fold: first, to highlight the creativity and innovation employees have contributed to direction of the 1990 RPA program; second, to look ahead and continue our evolution. Our ability to look forward into the future and position ourselves in a growth pattern to fully implement ecosystem management is imperative.

Hopefully, the projects in this document have sparked new ideas within you, the reader, which will help take us further along the pathway—into the new era of the 1995 program.

Your response can help focus our direction as research findings and creative implementation lead to new ways of "caring for the land and serving people." As the best observers of change, your ideas and communication about how we can move productively into the future, are respected and appreciated.

A detachable card is included to provide an easy avenue for you to share your thoughts on strategic planning and assessment—an interesting, rewarding challenge!

CREATE ADVENTURE
ENHANCE RECREATION, WILDLIFE AND FISHERIES
It's the Right Way to Go.
BE SENSITIVE
ENVIRONMENTALLY ACCEPTABLE COMMODITY PRODUCTION
It's the Right Way to Go.
THINK GLOBALLY
RESPONDING TO GLOBAL ISSUES
It's the Right Way to Go.
UNDERSTAND NATURE
IMPROVING SCIENTIFIC KNOWLEDGE ABOUT NATURAL RESOURCES
It's the Right Way to Go.

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